

**REMARKS**

Claims 1, 3, 5, 7, 8, and 10 have been amended, claims 2, 6, 9, and 11 have been cancelled without prejudice or disclaimer, and claims 1, 3, 5, 7, 8, and 10 are pending and under consideration. No new matter is presented in this Amendment.

**OBJECTIONS TO THE DRAWINGS:**

The Examiner has objected to FIG. 1 as only that which is old is illustrated. Applicants have provided herewith Replacement Sheets for FIGs. 1A and 1B in which FIGs. 1A and 1B are labeled "Related Art".

**PRIORITY:**

The Examiner has requested that Applicants submit a certified copy of the priority document, JP 2002-281783, or a copy of the ribbon cover page of the priority document submitted to the WO. Applicants submit herewith a copy of the ribbon cover page of the priority document, JP 2002-281783.

**REJECTIONS UNDER 35 U.S.C. §112:**

**Claims 1-3 and 5-11** are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner has rejected **claims 1-3 and 5-11** for including a relative term, "high melting point," that renders the claims indefinite. Without concession or agreement, but to expedite examination of the current application, Applicants have amended claims to remove such term. Further, **claims 2, 6, 9, and 11** have been canceled without prejudice or disclaimer. As such, it is respectfully requested that this rejection of **claims 1, 3, 5, 7, 8, and 10** be withdrawn and that such claims be allowed to issue.

Further, the Examiner has rejected **claim 2** for including a relative term, "nearly," that renders the claim indefinite. **Claim 2** has been canceled without prejudice or disclaimer, thereby

rendering this rejection moot.

# **REJECTIONS UNDER 35 U.S.C. §102:**

**Claims 1, 3, 5 and 7-11** are rejected under 35 U.S.C. §102 (a), (b), and/or (e) as being anticipated by Moritani et al. (U.S. Patent No. 6,411,591 and/or WO 99/14764). Moritani discloses an optical recording medium having a mask layer containing at least one of elements in groups Ib, IIb, IIIa to VIIa, and VIII in 10 to 40 atomic percent and also containing oxygen, the mask layer preferentially containing silicon too, and specifically a mask layer which is  $(\text{CoO})_{35}(\text{SiO}_2)_{45}(\text{NaO})_9(\text{CaO})_5(\text{MgO})_4(\text{Al}_2\text{O}_3)_1$ . See Col. 7, lines 52-56, Col. 10, lines 1-2, and Col. 5, lines 12-13, respectively. Such a mask layer cannot be described as a metal oxide mask layer. With respect to independent **claim 1**, Tungsten, of  $\text{WO}_x$ , is found in group VIb of the periodic table, which is not included in the groups listed by Moritani. Moritani does not disclose, inherently or expressly, a mask layer comprising  $\text{WO}_x$  as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

With respect to independent **claim 3**, neither tantalum oxide nor gold oxide are disclosed as a material for a mask layer by Moritani. With respect to tantalum of  $\text{TaO}_x$  of **claim 3**, tantalum is found in group Vb of the periodic table, which is not included in the groups listed by Moritani. Thus, Moritani does not disclose, inherently or expressly, a mask layer comprising  $\text{TaO}_x$  as recited in **claim 3**.

With respect to gold of the  $\text{AuO}_x$  of **claim 3**, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); and see MPEP §2131. Although Moritani thoroughly discloses elemental combinations for use in a mask layer (~45 of the ~112 elements on the periodic table), Moritani fails to disclose the use of  $\text{AuO}_x$  in a mask layer. Col. 7, lines 52-56. Gold is not mentioned any further than in a laundry list of elements available for use. "It is further preferred that the mask layer 3 contain at least one of elements, Co, Fe, Ni, Cr, Cu and Ag... Of these elements, Co exhibits the most desirable characteristics, followed by Fe, Ni and Cr." Col. 8, lines 9-12. Further, Moritani discloses  $(\text{CoO})_{35}(\text{SiO}_2)_{45}(\text{NaO})_9(\text{CaO})_5(\text{MgO})_4(\text{Al}_2\text{O}_3)_1$  as a material for the mask layer, which is consistently referred to throughout the specification, and fails to teach the mask layer comprising  $\text{AuO}_x$  as recited in **claim 3**. See Col. 5, lines 12-13;

Col. 5, lines 29-30; Col. 8, line 30, Col. 8, lines 41-42. A disclosure of almost half of the periodic table does not provide sufficient disclosure to anticipate the mask layer comprising  $\text{AuO}_x$  as recited in **claim 3** particularly when  $\text{AuO}_x$  is not further discussed therein. Therefore, Moritani fails to disclose each and every element as recited in **claim 3**. Thus, it is respectfully requested that this rejection be withdrawn and that **claim 3** be allowed to issue.

With respect to independent **claim 8**, Moritani discloses a mask layer comprising  $\text{SiO}_2$  but does not disclose, inherently or expressly, a mask layer consisting of  $\text{SiO}_x$  as recited in **claim 8**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 8** be allowed to issue.

**Claims 2, 6, 9, and 11** have been canceled without prejudice or disclaimer, and **claims 5, 7, and 10** are allowable for at least similar reasons as described above by virtue of their dependency on allowable claims.

**Claim 1** is also rejected under 35 U.S.C. §102(a), (b), and/or (e) as being anticipated by any of the following: IDS reference to Lin et al. (2002 *IEEE journal article title "Study of a super-resolution optical structure: polycarbonate/ZnS-SiO<sub>2</sub>/ZnOX/ZnS-S iO<sub>2</sub>/Ge<sub>2</sub>SB<sub>2</sub>Te<sub>2</sub>/ZnS-S iO<sub>2</sub>"*), IDS journal article to Fuji et al. (*Jpn. J. Appl. Phys.*, v39, 2000, pp 980-981), Tseng et al. (U.S. Patent No. 6,506,543), and/or Chen (U.S. Patent Application Publication No. 2003/0228462).

The Lin et al. Reference

The Examiner has cited the Lin et al. reference as anticipating **claim 1**. However, Lin et al. fails to disclose a mask layer that comprises  $\text{WO}_x$  as recited in **claim 1**. As such, Lin et al. cannot anticipate the invention as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

The Fuji et al. Reference

The Examiner has cited the Fuji et al. reference as anticipating **claim 1**. However, Fuji et al. fails to disclose a mask layer that comprises  $\text{WO}_x$  as recited in **claim 1**. As such, Fuji et al. cannot anticipate the invention as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

The Tseng et al. Reference

The Examiner has cited the Tseng et al. reference as anticipating **claim 1**. However, Tseng et al. fails to disclose a mask layer that comprises  $WO_x$  as recited in **claim 1**. As such, Tseng et al. cannot anticipate the invention as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

The Chen Reference

The Examiner has cited the Chen reference as anticipating **claim 1**. However, Lin et al. fails to disclose a mask layer that comprises  $WO_x$  as recited in **claim 1**. As such, Chen cannot anticipate the invention as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

**REJECTIONS UNDER 35 U.S.C. §103:**

**Claims 2 and 6** are rejected under 35 U.S.C. §103(a) as being unpatentable over Moritani et al. (U.S. Patent No. 6,411,591 and/or WO 99/14764) as applied above, and further in view of IDS reference to Bussjager et al. (Jpn. J. Phys., 39, 2000, 789-796).

As the features of **claim 2** have been incorporated into independent **claim 1**, this rejection of **claim 2** is addressed with respect to **claim 1**. As admitted by the Examiner at page 7 of the Office Action, Moritani fails to disclose using a mask layer of  $WO_x$ . Further, the Examiner recognizes that Bussjager merely teaches "the use of  $WO_x$  within optical media" as opposed to teaching a mask layer that comprises  $WO_x$  as recited in **claim 1**. See *id.*

First, the combination of Moritani and Bussjager does not provide the invention as claimed. Specifically, Bussjager discloses the use of  $WO_x$  as a material for a recording layer, not a mask layer. See Bussjager at page 789 stating "In this study we have clearly shown that a single, easily manufactured layer of tungsten oxide can be used for optical storage." Thus, the use of  $WO_x$  as taught by Bussjager, if provided in Moritani, would result in a recordable medium having a  $WO_x$  recording layer while maintaining the mask layer of Moritani. The combination of the cited references does not teach, suggest, or motivate the invention as recited in **claim 1**. For such reasons alone, this rejection should be withdrawn.

The Examiner states that "one of ordinary skill in the art would be motivated to make and

use the claimed  $WO_x$  metal oxide in searching for an improved metal oxide based mask layer." *Id.* Further, the Examiner states that the motivation to combine the references "rises from the expectation that similar compounds will have similar properties. "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Such motivation is insufficient to state a case of *prima facie* obviousness. "The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious." MPEP 2143. Similar to as stated above, one of ordinary skilled in the art may have been motivated to combine the references to produce a recordable medium having a  $WO_x$  recording layer of Bussjager and the mask layer of Moritani. But, such motivation does not extend to producing a mask layer comprising  $WO_x$  as recited in **claim 1**.

Further, although Moritani thoroughly discloses elemental combinations for use in a mask layer (~45 of the ~112 elements on the periodic table), Moritani fails to disclose the use of  $WO_x$  in a mask layer. Such disclosure of elemental combinations while omitting  $WO_x$  implies that Moritani considered but excluded the use  $WO_x$  as a mask layer. And, Bussjager merely teaches the use of  $WO_x$  as a recording layer, not a mask layer. Moreover, the Examiner has failed to provide reasoning for or evidence as to why the  $WO_x$  as taught by Bussjager for use in a recording layer would have the same properties when applied to a mask layer. As such, the Examiner has failed to state a *prima facie* case of obviousness, and it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

**Claims 3, 5, and 7-11** are rejected under 35 U.S.C. §103(a) as being unpatentable over IDS reference to Lin et al. (2002 IEEE journal article title "Study of a super-resolution optical structure: polycarbonate/ $ZnS-SiO_2/ZnOX/ZnS-SiO_2/Ge_2SB_2Te_7/ZnS-SiO_2$ "), IDS journal article to Fuji et al. (*Jpn. J. Appl. Phys.*, v39, 2000, pp 980-981), Tseng et al. (U.S. Patent No. 6,506,543), and/or Chen (U.S. Patent Application Publication No. 2003/0228462) as applied above, and further in view of Moritani et al. (U.S. Patent No. 6,411,591 and/or WO 99/14764).

**Claim 3** has been amended to independent form. With regard to the above references, none disclose the use of  $TaO_x$  in a recordable medium. Further, as noted above, one skilled in

the art would not have been motivated to combine such references to produce a mask layer that comprises  $\text{TaO}_x$  as recited in **claim 3**. Both Moritani's and Tseng's comprehensive listings of materials exclude the use of tantalum, thereby inherently teaching against such use. As none of the references even teach the use of tantalum, the combinations of cited references can not render obvious the invention as recited in **claim 3**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 3** be allowed to issue.

Because **claim 5 and 7** depend upon and incorporate the features of independent **claim 3**, **claims 5 and 7** are patentable for at least similar reasons as independent **claim 3**. Namely, **claim 3** recites a mask layer that comprises  $\text{TaO}_x$ , which is not disclosed in any of the references cited. Thus, it is respectfully requested that these rejections be withdrawn and that **claims 5 and 7** be allowed to issue.

Because **claims 6, 9, and 11** have been cancelled without prejudice or disclaimer, the rejections of such claims has been rendered moot.

With regard to **claim 8**, the references cited teach mask layers comprising  $\text{SiO}_x$ ; however, none of the references teach a mask layer that consists of  $\text{SiO}_x$ . Further, a mask layer consisting of  $\text{SiO}_x$  would not be obvious to one skilled in the art to as the teachings of the art include complicated materials for use in the mask layer, such as  $(\text{CoO})_{38}(\text{SiO}_2)_{48}(\text{NaO})_9(\text{CaO})_8(\text{MgO})_4(\text{Al}_2\text{O}_3)_1$  from Moritani. Although such a mask layer comprises  $\text{SiO}_2$ , such complicated mask layer material teaches away from producing a mask layer that consists of  $\text{SiO}_x$ . Thus, the combinations of cited references do not render obvious the invention as recited in **claim 8**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 8** be allowed to issue.

Because **claim 10** depends upon and incorporates the features of independent **claim 8**, **claim 10** is patentable for at least similar reasons as independent **claim 8**. Namely, **claim 8** recites a mask layer that consists of  $\text{SiO}_x$ , which is not disclosed in any of the references cited. Thus, it is respectfully requested that this rejection be withdrawn and that **claim 10** be allowed to issue.

**Claim 2** is rejected under 35 U.S.C. §103(a) as being unpatentable over Lin et al. (2002 IEEE journal article title "Study of a super-resolution optical structure: polycarbonate/ZnS-

$\text{SiO}_2/\text{ZnOx}/\text{ZnS-S iO}_2/\text{Ge}_2\text{SB}_2\text{Te}_2/\text{ZnS-S iO}_2$ "), IDS journal article to Fuji et al. (*Jpn. J. Appl. Phys.*, v39, 2000, pp 980-981), Tseng et al. (U.S. Patent No. 6,506,543), and/or Chen (U.S. Patent Application Publication No. 2003/0228462) as applied above, and further in view of IDS reference to Bussjager et al. (*Jpn. J. Phys.*, 39, 2000, 789-796).

As the features of **claim 2** have been incorporated into independent **claim 1**, this rejection of **claim 2** is addressed with respect to **claim 1**. With regard to the above references, none disclose the use of  $\text{WO}_x$  in a recordable medium. Further, as noted above, one skilled in the art would not have been motivated to combine such references to produce a mask layer that comprises  $\text{WO}_x$  as recited in **claim 1**. Bussjager teaches a recording layer of  $\text{WO}_x$ , which is completely different from a mask layer that comprises  $\text{WO}_x$  as recited in **claim 1**. One of ordinary skill in the art would not apply the teachings of the materials of a recording layer for the production of a mask layer. Thus, the combinations of cited references do not render obvious the invention as recited in **claim 1**. Therefore, it is respectfully requested that this rejection be withdrawn and that **claim 1** be allowed to issue.

**Claim 6** is rejected under 35 U.S.C. §103(a) as being unpatentable over Lin et al. (2002 *IEEE journal article title "Study of a super-resolution optical structure: polycarbonate/ZnS-SiO<sub>2</sub>/ZnOX/ZnS-S iO<sub>2</sub>/Ge<sub>2</sub>SB<sub>2</sub>Te<sub>2</sub>/ZnS-S iO<sub>2</sub>"*), IDS journal article to Fuji et al. (*Jpn. J. Appl. Phys.*, v39, 2000, pp 980-981), Tseng et al. (U.S. Patent No. 6,506,543), and/or Chen (U.S. Patent Application Publication No. 2003/0228462) as applied above, and further in view of IDS reference to Bussjager et al. (*Jpn. J. Phys.*, 39, 2000, 789-796) as applied to above in Paragraph No. 13, and further in view of Moritani et al. (U.S. Patent No. 6,411,591 and/or WO 99/14764). This rejection is rendered moot by the cancelling, without prejudice or disclaimer, of **claim 6**.

Based on the foregoing, this rejection is respectfully requested to be withdrawn.

## **CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is

requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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